

CLAIMS

What is claimed is:

- 5 1. In a transferring node, a method for distributing data in a hierarchical network of nodes, the method comprising the steps of:
- receiving a collection of data from a provider node in the hierarchical network of nodes;
- transferring a copy of the collection of data to a child node of the
- 10 transferring node in the hierarchical network of nodes in response to the step of receiving the collection of data; and
- storing the collection of data in a data storage after completing the step of transferring the copy of the collection of data.
- 15 2. The method of claim 1, wherein the collection of data represents content distributed as a stream of packets to the hierarchical network from a source node, and wherein:
- the step of receiving the collection of data comprises receiving the stream of packets in a buffer;
- 20 the step of transferring the copy of the collection of data comprises propagating the stream of packets from the buffer to descendent nodes of the transferring node for access by a first client making a first request for the collection of data from the descendent node; and
- the step of storing the collection of data comprises transferring the stream
- 25 of packets from the buffer to the data storage in the transferring node in a manner enabling access to the collection of data by a second client making a second request for the collection of data.
- 30 3. The method of claim 1, wherein the child node is one of a plurality of child nodes, and the step of transferring the copy of the collection of data comprises

transferring copies of the collection of data to each of the plurality of child nodes, if each child node is available over the hierarchical network.

4. The method of claim 1, wherein the step of transferring the collection of data
5 comprises receiving a verification from the child node that the copy of the collection of data received by the child node is a complete copy of the collection of data.
5. The method of claim 1, wherein the collection of data comprises a plurality of
10 packets of data and the step of transferring the copy of the collection of data comprises:
 - (i) receiving an indication from the child node that the copy of the collection of data received by the child node is incomplete; and
 - (ii) transferring copies of at least one packet of data to the child
15 node to complete the copy of the collection of data received by the child node.
6. The method of claim 1, wherein the step of transferring the copy of the collection
20 of data comprises transferring an additional copy of the collection of data to an additional child node of the transferring node based on a request from the additional child node.
7. The method of claim 1, wherein the step of transferring the copy of the collection
25 of data comprises transferring the copy of the collection of data between the provider node and the child node through the transferring node in a delayed timing mode.
8. The method of claim 1, wherein the step of storing the collection of data
30 comprises retaining the collection of data after confirming the receipt of the copy of the collection of data by the child node.

9. The method of claim 1, wherein the step of receiving the collection of data comprises a step of providing an acknowledgment indicating that the collection of data is complete and the step of transferring the collection of data is performed after the step of providing the acknowledgment.

10. The method of claim 1, further comprising the step of:
Maintaining a connection among the network of nodes in order to transfer the collection of data.

11. A computer system for distributing data in a hierarchical network of nodes, the computer system comprising:
a memory;
a data storage;
a network interface in communication with the memory and the data storage; and
a processor in communication with the memory, the data storage, and the network interface,
wherein the memory is encoded with logic instructions for a data manager application that, when performed on the processor, cause the processor to form a data manager that manages the distribution of data in the hierarchical network by performing operations of:
receiving a collection of data from a provider node in the hierarchical network of nodes;

transferring a copy of the collection of data to a child node of the
transferring node in the hierarchical network of nodes in response to the
step of receiving the collection of data; and
storing the collection of data in a data storage after completing the
transferring of the copy of the collection of data.

12. The computer system of claim 11, further comprising a buffer, wherein the
collection of data represents content distributed a stream of packets to the
hierarchical network from a source node and the logic instructions for the data
manager application comprise further logic instructions, that, when performed on
the processor, cause the data manager to perform operations of:

receiving the stream of packets in the buffer;

propagating the stream of packets from the buffer to descendent nodes of
the transferring node for access by a first client making a first request for the
collection of data from the descendent node; and

transferring the stream of packets from the buffer to the data storage in the
transferring node in a manner enabling access to the collection of data by a second
client making a second request for the collection of data.

13. The computer system of claim 11, wherein the child node is one of a plurality of
child nodes, and the logic instructions for the data manager application comprise
further logic instructions, that, when performed on the processor, cause the data
manager to perform an operation of transferring copies of the collection of data to
each of the plurality of child nodes, if each child node is available over the
hierarchical network.

14. The computer system of claim 11, wherein the logic instructions for the data manager application comprise further logic instructions, that, when performed on the processor, cause the data manager to perform an operation of receiving a verification from the child node that the copy of the collection of data received by the child node is a complete copy of the collection of data.

15. The computer system of claim 11, wherein the collection of data comprises a plurality of packets of data and the logic instructions for the data manager application comprise further logic instructions, that, when performed on the processor, cause the data manager to perform operations of:

(i) receiving an indication from the child node that the copy of the collection of data received by the child node is incomplete; and

(ii) transferring copies of at least one packet of data to the child node to complete the copy of the collection of data received by the child node.

16. The computer system of claim 11, wherein the logic instructions for the data manager application comprise further logic instructions, that, when performed on the processor, cause the data manager to perform an operation of transferring an additional copy of the collection of data to an additional child node of the transferring node based on a request from the additional child node.

17. The computer system of claim 11, wherein the logic instructions for the data manager application comprise further logic instructions, that, when performed on the processor, cause the data manager to perform an operation of transferring the copy of the collection of data between the provider node and the child node through the transferring node in a delayed timing mode.

18. The computer system of claim 11, wherein the logic instructions for the data manager application comprise further logic instructions, that, when performed on the processor, cause the data manager to perform an operation of retaining the collection of data after confirming the receipt of the copy of the collection of data by the child node.

19. The computer system of claim 11, wherein the logic instructions for the data manager application comprise further logic instructions, that, when performed on the processor, cause the data manager to perform an operation of transferring the collection of data after providing an acknowledgment indicating that the collection of data is complete.

20. A computer program product that includes a computer readable medium having instructions stored thereon for distributing data in a hierarchical network, such that the instructions, when carried out by a computer, cause the computer to perform steps of:

receiving a collection of data from a provider node in the hierarchical network of nodes;

transferring a copy of the collection of data to a child node of the transferring node in the hierarchical network of nodes in response to the step of receiving the collection of data; and

storing the collection of data in a data storage after completing the step of transferring the copy of the collection of data.

21. A computer system for distributing data in a hierarchical network of nodes, the computer system comprising:

means for receiving a collection of data from a provider node in the hierarchical network of nodes;

means for transferring a copy of the collection of data to a child node of the transferring node in the hierarchical network of nodes in response to the step of receiving the collection of data; and

means for storing the collection of data in a data storage after completing the step of transferring the copy of the collection of data.

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